

REMARKS

Applicants have carefully considered the office action mailed on October 4, 2007. Of the pending claims, the Examiner rejected claims 1-30. Claims 1-30 remain pending in the present patent application. In view of the following remarks, Applicants request further examination and reconsideration of the present patent application.

Title

The Examiner objected to the title of the invention, as not being descriptive and not being indicative of the invention to which the claims are directed. Applicants disagree with the Examiner and respectfully submit that the title of the invention is descriptive and indicative of the invention to which the claims are directed. See, Application, e.g., claim 1, which recites, "An apparatus for monitoring the performance of a distributed system". Accordingly, Applicants respectfully request that the Examiner re-consider and remove the objections to the title or provide further reasons as to why the title of the invention is not descriptive, and how the alleged deficiency in the title may be overcome.

Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a) because the rectangular boxes shown in Figures 1, 2 and 3 were unlabeled and not provided with descriptive text labels. Applicants disagree with the Examiner, and respectfully submit that the rectangular boxes illustrated in Figures 1, 2 and 3 are *labeled boxes*, wherein each box is labeled with its respective reference numeral. Further, Applicants respectfully submit that the rectangular boxes illustrated in Figures 1, 2 and 3 are labeled in accordance with the rule stated in 37 CFR 1.83(a), which states that "...conventional features disclosed in the description and the claims.... be illustrated...in the form of a labeled representation (e.g., a labeled rectangular box)". Accordingly, Applicants request that the Examiner re-consider and remove the objections to the drawings.

Rejections Under 35 U.S.C. 102

Claims 1-5, 9-17 and 30 were rejected under 35 U.S.C 102(e) as being anticipated by US Patent No. US 7,020,701B1 (hereinafter, "Gelvin"). Anticipation

requires the disclosure in a single prior art reference of each element of the claim under consideration.

Independent claim 1 is directed to an apparatus for monitoring the performance of a distributed system. The distributed system comprises a plurality of cooperating units disposed in a communications network. The apparatus comprises a plurality of diagnostic components, wherein each unit of the system comprises at least one of said diagnostic components. Each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system.

Claim 21 recites similar limitations in the context of a method for monitoring the performance of a distributed system. Likewise, claims 20 and 28 are both directed to an apparatus for monitoring the performance of a distributed system. Claim 20 further recites that the raw data is processed by statistical techniques selected from the group consisting of comparison of said raw data to a predetermined specification value, statistical correlation, trend analysis, regression, calibrations, and multivariate statistical techniques and that the reduced data is analyzed using statistical techniques selected from the group consisting of correlation techniques, multivariate statistical process analysis and pattern recognition techniques. Claim 20 further recites that each diagnostic component further comprises at least one user interface module adapted to receive said system performance data from said data analysis module for communicating said system performance data of said distributed system to a user. Claim 28 further recites that the performance characteristic is selected to measure the security of the units and that the data analysis module utilizes the performance data in a pattern recognition technique to discern a potential security threat related to the units.

Gelvin discloses a Wireless Integrated Network Sensor Next Generation (WINS NG) monitoring network, comprising nodes that provide distributed network and internet

access to sensors, controls and processors that are embedded in equipment, facilities and the environment. (Abstract).

Applicants respectfully submit that Gelvin does not disclose an apparatus for monitoring the performance of a distributed system, wherein said apparatus comprises a plurality of diagnostic components, and wherein each unit of said system comprises at least one of said diagnostic components, as recited in claims 1, 20, 21 and 28. Further, Applicants respectfully submit that Gelvin does not disclose, teach or suggest that each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system, as recited in claims 1, 20, 21 and 28.

Applicants have carefully reviewed the sections, Abstract; Col. 6, line 52; col. 14, line 10; col. 24, line 44; col. 38, line 12; col.66, line 5; col. 73, line 14; col. 18, line 13 cited by the Examiner in Gelvin, and submit that these sections do not disclose an apparatus for monitoring the performance of a distributed system, wherein said apparatus comprises a plurality of diagnostic components, and wherein each unit of said system comprises at least one of said diagnostic components. Instead the sections, Abstract; Col. 6, line 52; col. 14, line 10; col. 24, line 44, merely disclose that the WINS NG sensors and nodes provide distributed network and internet access to sensors, controls and processors that are embedded in equipment, facilities and the environment. Further, the sections col. 38, line 12; col. 66, line 5; col. 73, line 14; col. 18, line 13 merely disclose that a database of observations over time may be used to develop better diagnostic and prognostic algorithms. In addition, Applicants carefully reviewed the sections, col. 1, line 47; col. 2, line 38; col. 4, line 7; col. 7, line 28; Figs. 3-7, col. 54, line 2; col. 52, line 58, col. 25, line 13; col. 4, line 43; col. 59, line 3, col. 17, line 37; col. 22, line 61 cited by the Examiner and submit that these sections do not disclose, teach or suggest that each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at

least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system. Instead, the section, col. 1, line 47; col. 2, line 38; col. 4, line 7; col. 7, line 28; Figs. 3-7, merely discloses that sensor networks are a means for gathering information about the physical world and that sensor nodes can be of a variety of types, including very simple nodes that may serve as tags. In addition, the section, col. 54, line 2; col. 52, line 58 merely discloses a plug and play protocol as an embodiment of the sensor web, and that one of the functions performed by the plug and play networking protocol is data reduction. Further, the section col. 25, line 13; col. 4, line 43; col. 59, line 3 discloses a multicluster network architecture comprising nodes that are dispersed in an environment, wherein transceivers are employed to enable nodes in the network to communicate. In addition, the section, col. 17, line 37; col. 22, line 61 discloses that WING API's enable preprocessor control of the processor, and that WINS basic is a macro language that supports programming of the preprocessor at a high level, and enables execution of numerous code modules that pre-exist on the preprocessor.

Specifically, Applicants point out that Gelvin merely discloses a WINS NG network that provides distributed network and internet access to sensors, controls, and processors that are embedded in equipment, facilities and the environment, wherein sensor nodes within the WINS NG network monitor and control the network. See, e.g., Gelvin, col. 1, lines 43-45 and col. 10, lines 50-52. Clearly, in Gelvin, any control and/or monitoring of the network, is performed only based on the use of sensor nodes that are distributed within the network and network protocols and/or API's that perform data processing functions, such as data reduction functions and execution of code modules, within the network. See, e.g., Gelvin, col. 54, line 2; col. 52, line 58; and col. 17, line 37; col. 22, line 61.

In contrast, the present patent application discloses an apparatus for monitoring the performance of a distributed system, wherein the apparatus comprises a plurality of diagnostic components, *wherein each unit of the distributed system comprises at least one diagnostic component*, and wherein each diagnostic component comprises a sensor, a data reduction module, a transceiver and a data analysis module. In particular, and as recited in independent claims 1, 20, 21 and 28, each diagnostic component comprises a

sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system.

In other words, in accordance with the present patent application, an apparatus is disclosed for monitoring the performance of a distributed system, wherein the apparatus comprises a diagnostic component, *and wherein each unit of the distributed system comprises the diagnostic component and wherein each diagnostic component further comprises at least one sensor, a data reduction module, a transceiver and a data analysis module.* See, e.g., Application, paragraph [0015] and [0016]. In particular, the method and apparatus disclosed in accordance with the present patent application enables the decentralization of the sensors and sensor processing in the diagnostic components in each unit, so that individual units within the distributed system may benefit from the experience of all units within the system. See, e.g., Application, paragraph [0023].

In particular, and as recited in independent claims 1, 20, 21 and 28, an apparatus for monitoring the performance of a distributed system is provided, wherein the distributed system comprises a plurality of cooperating units disposed in a communications network. The apparatus comprises a plurality of diagnostic components, wherein each unit of the system comprises at least one of said diagnostic components. Each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system.

Since, Gelvin fails to disclose, teach or suggest at least a method and an apparatus for monitoring the performance of a distributed system, the distributed system comprising a plurality of cooperating units disposed in a communications network, wherein the apparatus comprises a plurality of diagnostic components, wherein each unit of the system comprises at least one of said diagnostic components, and wherein each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system, Gelvin cannot anticipate claims 1, 20, 21 and 28. Accordingly, claims 1, 20, 21 and 28 and claims depending therefrom are believed to be clearly patentable over Gelvin as well as other prior art of record. Thus, it is respectfully requested that the rejection of claims 1-5, 9-17 and 30 under 35 U.S.C 102(e) be withdrawn.

Rejections Under 35 U.S.C. 103

Claims 6-8 and 18-19 were rejected under 35 U.S.C 103(a) as being unpatentable over Gelvin in view of US Patent No. US 6,671,818 B1 (hereinafter, "Mikurak"). For a *prima facie* case of obviousness, the Examiner must set forth the differences in the claim over the applied reference, set forth the proposed modifications of the reference, which would be necessary to arrive at the claimed subject matter, and explain why the proposed modification would be obvious.

As summarized above, all of the independent claims are believed to be patentable over Gelvin. The Mikurak reference has been reviewed with respect to the 35 U.S.C 103(a) rejection and does not supply the deficiencies of Gelvin in regards to at least a method and an apparatus for monitoring the performance of a distributed system, the distributed system comprising a plurality of cooperating units disposed in a communications network, wherein the apparatus comprises a plurality of diagnostic components, wherein each unit of the system comprises at least one of said diagnostic

components, and wherein each diagnostic component further comprises at least one sensor for sensing at least one unit performance characteristic and representing said at least one characteristic as raw data, a data reduction module adapted to receive and process said raw data produced by said at least one sensor to generate reduced data, a transceiver adapted to receive said reduced data from said data reduction module and to transmit and receive said reduced data to and from said plurality of units using said network and a data analysis module adapted to accept and analyze said reduced data from said transceiver to produce performance data related to said distributed system. Accordingly, claims 6-8 and 18-19 are allowable by virtue of their dependency from allowable base claim 1, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 6-8 and 18-19 under 35 U.S.C 103(a) be withdrawn.

In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested. Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact the applicants undersigned representative at the telephone number below.

Respectfully submitted,

/Paul J. DiConza/

Paul J. DiConza

Reg. No. 48,418

December 11, 2007
General Electric Company
One Research Circle
Building K1, Room 3A60
Niskayuna, New York 12309
Telephone: (518) 387-6131
Fax: (518) 387-7751